

## **ABSTRACT**

[0077] A pinned photodiode with a surface layer of a first conductivity type laterally displaced from an electrically active area of a gate structure and a charge collection region of a second conductivity type formed by an angled implant is disclosed. The angle of the charge collection region implant may be tailored so that the charge collection region contacts an adjacent edge of the transfer gate of the pixel sensor cell and minimizes, therefore, the gate overlap region and an undesirable barrier potential.